

## Claims

What is claimed is:

1. A method of controlling an asymmetric waveform generated as a combination of two sinusoidal waves having a frequency that differs by a factor of two, the method comprising the steps of:
  - sampling the generated asymmetric waveform to obtain a set of data points that is indicative of the generated asymmetric waveform;
  - arranging the sampled data points in an order according to magnitude;
  - comparing the arranged sampled data points to template data relating to a desired asymmetric waveform; and,
  - in dependence upon the comparison, determining a correction to the generated asymmetric waveform.
2. A method according to claim 1, comprising a step of obtaining the template data, the template data including a set of data points relating to the desired asymmetric waveform.
3. A method according to any one of claims 1 and 2, wherein the step of sampling is performed as an analog-to-digital sampling for collecting data points contained within one cycle of the generated asymmetric waveform.
4. A method according to any one of claims 1 and 2, wherein the step of sampling is performed as an analog-to-digital sampling, for collecting data points from a plurality of portions of the generated asymmetric waveform during a period of time overlapping with a plurality of different cycles of the generated asymmetric waveform.
5. A method according to any one of claims 2, 3, and 4, wherein the step of comparing comprises a step of determining a difference between each arranged sampled data point and a corresponding data point of the template data.
6. A method according to any one of claims 1, 2, 3, 4, and 5, wherein the

generated asymmetric waveform has the general form  $V(t) = A \sin(\omega t) + B \sin(2\omega t - \Theta)$ , where  $V(t)$  is the asymmetric waveform voltage as a function of time,  $A$  is the amplitude of the first sine wave at frequency  $\omega$ , where  $\omega$  is the frequency in radians/sec,  $B$  is the amplitude of the second sine wave at a frequency  $2\omega$ , and  $\Theta$  is a phase angle offset between the first sinusoidal wave and the second sinusoidal wave.

7. A method according to claim 6, wherein the determined correction is for satisfying the condition  $A+B$  is equal to a desired asymmetric waveform voltage.
8. A method according to claim 6, wherein the determined correction is for satisfying the condition  $\Theta = \pi/2$ .
9. A method according to claim 6, wherein the determined correction is for satisfying the condition that  $A/B$  equals a predetermined value.
10. A method according to any one of claims 1 to 9, including the step of repeating the steps of claim 1 in an iterative fashion.
11. A method according to claim 1, wherein the determined correction is for adjusting at least one of a phase angle difference between the two sinusoidal waves and an amplitude of at least one of the two sinusoidal waves.
12. A method according to any one of claims 2 through 10, wherein the step of obtaining template data comprises the step of retrieving template data from a memory.
13. A method according to any one of claims 2 through 10, wherein the step of obtaining template data comprises the step of evaluating  $V(t) = A \sin(\omega t) + B \sin(2\omega t - \Theta)$  for each one of a plurality of  $t$ -values, for determining a first set of data points, and further comprises the step of arranging the first set of data points in an order according to magnitude.

14. A method according to claim 2, wherein the set of data points that is indicative of the generated asymmetric waveform and the template data include a same number of data points.

15. A storage medium encoded with machine-readable computer program code for controlling an asymmetric waveform generated as a combination of two sinusoidal waves having a frequency that differs by a factor of two, the storage medium including instructions for:

- obtaining a set of data points that is indicative of the generated asymmetric waveform;

- arranging the data points in an order according to magnitude;

- obtaining template data including a set of data points relating to a desired asymmetric waveform;

- comparing values of data points within a predetermined range of the arranged data points to values of data points within a corresponding predetermined range of the template data; and,

- in dependence upon the comparison, adjusting at least one of a phase angle difference between the two sinusoidal waves and an amplitude of at least one of the two sinusoidal waves.